

- C000 General Information
C020 Restricted or Nonmailable Articles and Substances

C023 Hazardous Materials

023

Summary C023 describes the standards, restrictions, and prohibitions for mailing hazardous materials, such as explosives, gasses, flammable and combustible liquids, flammable solids, oxidizing substances, organic peroxides, toxic and infectious substances, radioactive materials, and corrosives. It also provides information on package markings, shipping papers, and warning labels.

1.0 GENERAL

Definitions The following definitions apply:

- 1.1
- a. *Hazardous material* is any article or substance designated by the U.S. Department of Transportation (DOT) as being capable of posing an unreasonable risk to health, safety, and property during transportation. In international commerce, hazardous material is known as dangerous goods.
 - b. *Limited quantity* is the maximum amount of a specific hazardous material that is exempted from the labeling or packaging requirements in 49 CFR. Not every hazardous material is eligible to be shipped as a limited quantity.
 - c. *ORM-D (Other Regulated Material) material* is a limited quantity of a hazardous material that presents a limited hazard during transportation due to its form, quantity, and packaging. In almost all instances, the proper shipping name for an ORM-D material is consumer commodity. Not all hazardous material permitted to be shipped as a limited quantity can qualify as an ORM-D material.
 - d. *Consumer commodity* is a hazardous material that is packaged and distributed in a quantity and form intended or suitable for retail sale and designed for consumption by individuals for their personal care or household use purposes. This term can also include certain drugs or medicines. Not all hazardous material permitted to be shipped as a limited quantity can qualify as a consumer commodity.
 - e. *Air transportation*, for the purposes of this section only, applies to all mailable hazardous materials sent at First-Class Mail, Priority Mail, or Express Mail rates (see 1.9).
 - f. *Surface transportation*, for the purposes of this section only, applies to all mailable hazardous materials sent at Standard Mail or Package Services rates.
 - g. *Primary receptacle* is the container (e.g., tube, vial, bottle) that holds the hazardous material.
 - h. *Secondary packaging* is the container into which a primary receptacle is placed.
 - i. *Outer packaging* is the container into which a primary receptacle and secondary packaging, together with absorbent material and cushioning, are placed. The outer packaging bears the addressing information along with all required markings.

U.S. Department of Transportation 1.2 The U.S. Department of Transportation regulates the surface and air carriage of hazardous materials within the United States via any means of transportation. DOT regulations on hazardous materials are codified in Title 49, *Code of Federal*

Regulations (49 CFR), parts 100-185. Postal mailing standards for hazardous materials adhere to 49 CFR and often include additional limitations and prohibitions. Generally, postal standards restrict the mailing of hazardous materials to ORM-D materials that meet the postal volume limitations for the appropriate hazard class.

Hazard Class Every hazardous material is assigned to one of nine hazard classes identified in 49 CFR 172.101 and 173. Some hazard classes are further separated into divisions based on their physical or chemical properties. For postal purposes, [Exhibit 1.3](#) generally summarizes the mailability of hazardous materials by hazard class.

Exhibit 1.3 DOT Hazard Classes and Mailability Summary

Class	Hazard Class Name and Division	Domestic Mail Air Transportation	Domestic Mail Surface Transportation	International Mail
1	Explosives Division 1.1 Mass Explosive Hazard Division 1.2 Projection Hazard Division 1.3 Fire Hazard and/or Minor Blast/Minor Projection Hazard Division 1.4 Minor Blast Hazard Division 1.5 Very Insensitive With Mass Explosion Hazard Division 1.6 Extremely Insensitive With No Mass Explosion Hazard	Prohibited	Prohibited except with written permission as allowed in 2.2	Prohibited
2	Gases Division 2.1 Flammable Gases Division 2.2 Nonflammable, Nontoxic Gases Division 2.3 Toxic Gases	Division 2.1 and 2.3: Prohibited. Division 2.2: Only ORM-D material per 3.3	Divisions 2.1, 2.2: Only ORM-D material per 3.3 . Division 2.3: Prohibited	Prohibited
3	Flammable and Combustible Liquids	Flammable liquids: Prohibited. Combustibles: Only ORM-D material per 4.3	Flammable liquids: Only ORM-D material per 4.2 . Combustibles: Only ORM-D material per 4.3	Prohibited
4	Flammable Solids Division 4.1 Flammable Solids Division 4.2 Spontaneously Combustible Division 4.3 Dangerous When Wet	Prohibited	Only ORM-D material per 5.2	Prohibited
5	Oxidizing Substances, Organic Peroxides Division 5.1 Oxidizing Substances Division 5.2 Organic Peroxides	Only ORM-D material per 6.2	Only ORM-D material per 6.2	Prohibited
6	Toxic Substances and Infectious Substances Division 6.1 Toxic Substances Division 6.2 Infectious Substances	Division 6.1: Only ORM-D material per 7.2 . Division 6.2: Only per 8.0	Division 6.1: Only ORM-D material per 7.2 . Division 6.2: Only per 8.0	Division 6.1: Prohibited. Division 6.2: Only mailable per IMM 135
7	Radioactive Materials	Prohibited	Only in limits per 9.0 and Publication 52	Only mailable in limits per IMM 135
8	Corrosives	Only ORM-D material per 10.2	Only ORM-D material per 10.2	Prohibited
9	Miscellaneous Hazardous Materials	Only ORM-D material per 11.0	Only ORM-D material per 11.0	Prohibited, except magnetized materials per IMM 136

- Mailer Responsibility**
1.4 Full responsibility rests with the mailer to comply with all postal and nonpostal laws and regulations regarding the mailing of hazardous materials. Anyone who mails, or causes to be mailed, a nonmailable or improperly packaged hazardous material can be subject to legal penalties, including but not limited to those specified in 18 USC.
- Mailability Rulings**
1.5 Generally, the acceptability for mailing chemicals and other types of hazardous materials depends on container fluid/vapor capacities, the ability of the complete package to contain the material, and the method of absorbing and containing the product in case of accidental leakage of the primary receptacle. To determine mailability of a specific material, a mailer must submit a material safety data sheet (MSDS) and the following information to the appropriate rates and classification service center (RCSC):
- Name of material, hazard class, and assigned United Nations (UN) or North America (NA) identification number.
 - Chemical composition by percentage of ingredient.
 - Flashpoint.
 - Toxic properties.
 - Irritant action when inhaled, swallowed, or contacted by eyes or skin.
 - Special precautions necessary to permit handling without harm to USPS employees or damage to property or other mail.
 - Explanation of warning labels and shipping papers required by state or federal regulations.
 - Proposed packaging method, including the addressing and required markings.
 - Proposed number of pieces to be mailed, class of mail, and post office(s) of mailing.
- Warning Labels**
1.6 With few exceptions as noted in these standards, most hazardous materials acceptable for mailing fall within the Other Regulated Materials (ORM-D) regulations of CFR 49 173.144, which do not require DOT hazard class warning labels. Except for division 6.2 materials under 8.3 and dry ice under 11.4, any hazardous material bearing or required to bear a DOT hazard class warning label under the requirements in 49 CFR is prohibited from mailing. Mailable ORM-D material must be marked as required in 1.7. Mailable hazardous material must bear DOT handling labels (e.g., orientation arrows, magnetized materials) when applicable.
- Package Markings**
1.7 Each mailpiece containing a mailable hazardous material must be plainly and durably marked on the address side with the required shipping name and UN identification number. The UN identification number is not required on a mailpiece that contains an ORM-D material. A mailable ORM-D material must be marked on the address side with "ORM-D" or "ORM-D AIR," as applicable, immediately following or below the proper shipping name. The proper shipping name for a mailable ORM-D material is consumer commodity. Mailable ORM-D material sent via surface transportation must be marked on the address side as "Surface Mail Only."
- Shipping Papers**
1.8 For domestic surface transportation, a mailpiece containing a mailable hazardous material, except for an ORM-D material or a specimen mailed under 8.4, must be accompanied by a shipping paper prepared under 49 CFR 172.200 through 172.205. For domestic air transportation, a mailpiece containing a mailable



hazardous material, except for a specimen mailed under 8.4, must be accompanied by a shipper's declaration for dangerous goods (i.e., shipping paper) completed and signed in triplicate by the mailer. The shipping paper must be affixed to the outside of the mailpiece.

Air Transportation Prohibitions

1.9

All mailable hazardous materials sent at First-Class Mail, Priority Mail, or Express Mail rates are subject to the limitations that apply to air transportation. The following types of hazardous materials are prohibited from transport via aircraft:

- a. Anything susceptible to damage or that can become harmful because of changes in temperature or atmospheric pressures unless protected against the effects of such changes.
- b. Magnetic materials that have a field strength sufficient to cause a compass deviation at a distance of 15 feet (4.6 meters) or more from any point on the outer packaging.
- c. Flammable materials (gases, liquids, and solids).
- d. Radioactive materials.
- e. Materials excluded from air shipment by DOT regulations (49 CFR 100-185) or of the applicable state (country) or air carrier operator variations. Certain restricted articles, as described in 49 CFR 100-185 and the operator variations of the air carriers, may be accepted for air transportation if properly packaged. These articles must be labeled and bear a shipper's declaration in triplicate, as required by 49 CFR 172.204, or must be marked according to the air carrier's operator variations. Refer to the technical instruction of the International Civil Aviation Organization (ICAO) for air carrier operator variations.

2.0 EXPLOSIVES (HAZARD CLASS 1)

Definition

2.1

An *explosive* is any substance, article, or device that is designed to function by explosion (i.e., an extremely rapid release of gas and heat) or that, by chemical reaction within itself, is able to function in a similar manner even if not designed to function by explosion, unless the substance or article is otherwise classed under the provisions in 49 CFR. Hazard class 1 has six divisions as shown in [Exhibit 1.3](#). No further explanation of the six divisions is provided in these standards because explosives are prohibited in the mail except as permitted in [2.2](#).

Mailability

2.2

Explosives are prohibited in international mail. Explosives are prohibited in the domestic mail via air transportation. For domestic surface transportation, explosives are prohibited except for certain division 1.4 toy propellant devices and safety fuses specifically approved by the [Mail Preparation and Standards manager, USPS Headquarters](#), before mailing. A mailable explosive must meet the packaging and marking requirements provided with the Manager's approval. A shipping paper is required.

3.0 GASES (HAZARD CLASS 2)

Definition

3.1

Hazard class 2 consists of three divisions:

- a. Division 2.1, Flammable Gases. A material that is a gas at 68°F (20°C) or less and 14.7 psi (101.3 kPa) of pressure. Flammable gases also include materials that have a boiling point of 68°F (20°C) or less at 14.7 psi (101.3 kPa) and that are ignitable at 14.7 psi (101.3 kPa) when in a mixture of 13% or less by volume with air or that have a flammable range at 14.7 psi (101.3 kPa) with air of at least 12% regardless of the lower limit. These conditions

must be established in accordance with ASTM E681-85, Standard Test Method for Concentration Limits of Flammability of Chemicals, or other approved equivalent method. The flammability of aerosols must be determined using the tests specified in 49 CFR 173.306(i).

- b. Division 2.2, Nonflammable, Nontoxic Gases. A material that does not meet the definition of division 2.1 or 2.3 and exerts in its packaging an absolute pressure of 40.6 psia (280 kPa) or greater at 68°F (20°C).
- c. Division 2.3, Toxic Gases. A material that is poisonous by inhalation and is a gas at 68°F (20°C) or less and a pressure of 14.7 psi (101.3 kPa) or a material that has a boiling point of 68°F (20°C) or less at 14.7 psi (101.3 kPa).

Mailability
3.2 Gases are prohibited in international mail. Toxic gases in division 2.3 are prohibited in domestic mail. Flammable gases in division 2.1 are prohibited in domestic mail via air transportation, but are permitted via surface transportation if the material can qualify as an ORM-D material and meet the standards in 3.3 and 3.4. Nonflammable gases in division 2.2 are generally permitted in the domestic mail via air or surface transportation if the material can qualify as an ORM-D material and meet the standards in 3.3 and 3.4.

Container
3.3 An other-than-metal container of a mailable gas may be acceptable if the water capacity of the container is 4 fluid ounces (7.22 cubic inches) or less per mailpiece and the container meets 49 CFR requirements. Mailable nonflammable and flammable compressed gases are acceptable in metal inside containers that have a water capacity up to 33.8 fluid ounces (1 liter or 61.0 cubic inches), depending on their internal pressure. A DOT 2P container must be used if the internal pressure is from 140 to 160 psig at 130°F (55°C). A DOT 2Q container must be used if the pressure is from 161 to 180 psig at 130°F (55°C). A container with an internal pressure over 180 psig at 130°F (55°C) is prohibited from mailing. Mailable flammable compressed gases are restricted to 33.8 fluid ounces (1 liter) per mailpiece. Mailable nonflammable compressed gases are permitted in individual 33.8 fluid ounce (1 liter) containers that may be securely packed within a single mailpiece up to a weight of 66 pounds (30 kg) per 49 CFR 173.306.

Marking
3.4 For surface transportation, packages of mailable gases must be clearly marked on the address side with "Surface Mail Only" and "ORM-D" immediately following or below the proper shipping name (consumer commodity). For air transportation, packages must be plainly and durably marked on the address side with "ORM-D AIR" immediately following or below the proper shipping name and must also bear a shipper's declaration for dangerous goods.

4.0 FLAMMABLE AND COMBUSTIBLE LIQUIDS (HAZARD CLASS 3)

Definitions
4.1 The terms used in the standards that apply to hazard class 3 are defined as follows:

- a. *Flammable liquid* means a liquid that has a flashpoint of not more than 141°F (60.5°C), or any material in a liquid phase that has a flashpoint at or above 100°F (38°C).
- b. *Combustible liquid* means any liquid that does not meet the definition of any other hazard class and has a flashpoint above 141°F (60.5°C) and below 200°F (93°C). Note: A flammable liquid with a flashpoint at or above 100°F (38°C) that does not meet the definition of any other hazard class may be reclassified as a combustible liquid per 49 CFR 173.120(b).

**Flammable Liquid
Mailability**

4.2

Flammable liquid is prohibited in international mail. Flammable liquid with a flashpoint of 20°F (-7°C) or below is prohibited in domestic mail. Other flammable liquid is prohibited in domestic mail via air transportation but is permitted via surface transportation if the material can qualify as an ORM-D material and meet the following conditions as applicable:

- a. The flashpoint is above 20°F (-7°C) but no more than 73°F (23°C); the liquid is in a metal primary receptacle not exceeding 1 quart, or in another type of primary receptacle not exceeding 1 pint, per mailpiece; enough cushioning surrounds the primary receptacle to absorb all potential leakage; the cushioning and primary receptacle are packed within a securely sealed secondary packaging that is placed within a strong outer packaging; and each mailpiece is plainly and durably marked on the address side with "Surface Mail Only" and "ORM-D" immediately following or below the proper shipping name.
- b. The flashpoint is above 73°F (23°C) but less than 100°F (38°C); the liquid is in a metal primary receptacle not exceeding 1 gallon, or in another type of primary receptacle not exceeding 1 quart, per mailpiece; enough cushioning surrounds the primary receptacle to absorb all potential leakage; the cushioning and primary receptacle are placed within a securely sealed secondary packaging that is placed within a strong outer packaging; and each mailpiece is plainly and durably marked on the address side with "Surface Mail Only" and "ORM-D" immediately following or below the proper shipping name.

**Combustible Liquid
Mailability**

4.3

Combustible liquid is prohibited in international mail. Combustible liquid is permitted in domestic mail if the material can qualify as an ORM-D material and meet the following conditions as applicable:

- a. For surface transportation, if the flashpoint is 100°F (38°C) but no more than 141°F (60.5°C); the liquid is in a metal primary receptacle not exceeding 1 gallon, or in another type of primary receptacle not exceeding 1 quart, per mailpiece; enough cushioning surrounds the primary receptacle to absorb all potential leakage; the cushioning and primary receptacle are packed in a securely sealed secondary packaging that is placed within a strong outer packaging; and each mailpiece is plainly and durably marked on the address side with "Surface Mail Only" and "ORM-D" immediately following or below the proper shipping name.
- b. For surface or air transportation, if the flashpoint is above 141°F (60.5°C) but no more than 200°F (93°C); the liquid is in a primary receptacle not exceeding 1 gallon per mailpiece; enough cushioning surrounds the primary receptacle to absorb all potential leakage; the cushioning and primary receptacle are packed in a securely sealed secondary packaging that is placed within a strong outer packaging; and each mailpiece is plainly and durably marked on the address side with "ORM-D" or "ORM-D AIR," as applicable, immediately following or below the proper shipping name. Mailable material sent via surface transportation must be marked on the address side as "Surface Mail Only." For air transportation, each mailpiece must bear a shipper's declaration for dangerous goods.
- c. For air or surface transportation without restriction, if the flashpoint is above 200°F (93°C). Mailable combustible liquids must be properly and securely packaged to prevent leakage.

Cigarette Lighters

4.4

A cigarette lighter equipped with an ignition element and containing fuel is a Class 3 flammable liquid. A cigarette lighter that contains a flammable gas is classed as

a division 2.1 flammable gas. A cigarette lighter containing either flammable liquid or flammable gas is permitted only in domestic mail via surface transportation when all of the following conditions are met:

- a. The design of the lighter and its packaging are approved by the DOT Associate Administrator for Hazardous Material Safety, per 49 CFR 173.21(i) and 173.308; and a DOT Approval Number (T-Number) is issued.
- b. The prospective mailer of the lighter submits to the appropriate RCSC manager a written request for authorization to mail the lighter, accompanied by a legible photocopy of the official DOT notice conveying the approval described in 4.4a and a specimen of the actual lighter, the packaging materials in which each lighter is to be mailed, the number of mailpieces and mailing location; and the mailer receives from the RCSC manager a letter approving the requested authorization for mailing.
- c. When presented for mailing, the address side of the mailpiece containing the lighter prominently displays the T-Number, the proper shipping name "Lighter for Cigarette," and the marking "Surface Mail Only"; all preparation and packaging requirements in the RCSC manager's approval letter are met; and a legible photocopy of the RCSC manager's approval letter accompanies the mailing.

5.0 FLAMMABLE SOLIDS (HAZARD CLASS 4)

Definitions

5.1

Hazard class 4 consists of three divisions:

- a. Division 4.1, Flammable Solids. Any solid material other than one classed as an explosive that, under conditions normally incident to transportation, is likely to cause fires through friction or retained heat from manufacturing or processing, or that can be ignited readily and, when ignited, burns so vigorously and persistently as to create a serious transportation hazard.
- b. Division 4.2, Spontaneously Combustible. A liquid or solid pyrophoric material that even in small amounts and without an external ignition source can ignite within 5 minutes after coming in contact with air, or a self-heating material that, when in contact with air and without an energy supply, is liable to self-heat.
- c. Division 4.3, Dangerous When Wet. A material that, by contact with water, is likely to become spontaneously flammable or to give off flammable or toxic gas at a rate greater than 1 liter per kilogram of the material per hour.

Mailability

5.2

Flammable solids are prohibited in international mail. Flammable solids are prohibited in domestic mail via air transportation. A flammable solid that can qualify as an ORM-D material is permitted in domestic mail via surface transportation if the material is contained in a secure primary receptacle having a weight of 1 pound or less; the primary receptacle(s) is packed in a strong outer packaging with a total weight of 25 pounds or less per mailpiece; and each mailpiece is plainly and durably marked on the address side with "Surface Mail Only" and "ORM-D" immediately following or below the proper shipping name.

Matches

5.3

Matches are classified as flammable solids. Strike-anywhere matches are prohibited in international and domestic mail. Safety matches (book, card, or strike-on-box) are prohibited in international mail, and in domestic mail via air transportation, but are permitted in domestic mail via surface transportation if:

- a. They do not ignite spontaneously under conditions normally incident to transportation or when subjected for 8 consecutive hours to a temperature of 220°F (93°C).
- b. They cannot be readily ignited by friction unless struck on their own or a similar box, card, or book.
- c. They are tightly packed in a securely sealed inner packaging to prevent any shifting or movement that could cause accidental ignition by rubbing against adjoining items. The inner packaging(s) is placed securely within an outer container made of fiberboard, wood, or other equivalent material. Multiple inner packagings may be placed in a single outer packaging. The address side of the mailpiece is marked "Surface Mail Only" and "Book Matches," "Strike-on-Card Matches," or "Card Matches," as appropriate. A shipping paper is required.
- d. The gross weight of each mailpiece is not more than 50 pounds.

6.0 OXIDIZING SUBSTANCES, ORGANIC PEROXIDES (HAZARD CLASS 5)

Definition Hazard class 5 consists of two divisions:

- 6.1
- a. Division 5.1, Oxidizing Substances. A material that may, generally by yielding oxygen, cause or enhance the combustion of other materials.
 - b. Division 5.2, Organic Peroxides. Any organic compound that contains oxygen in the bivalent structure and that may be considered a derivative of hydrogen peroxide, where one or more of the hydrogen atoms have been replaced by organic radicals.

Mailability Oxidizing substances and organic peroxides are prohibited in international mail.

6.2 For domestic mail, a material that can qualify as an ORM-D material is permitted via air or surface transportation. Liquid materials must be enclosed within a primary receptacle having a capacity of 1 pint or less; the primary receptacle(s) must be surrounded by absorbent cushioning material and held within a secondary leak-resistant container that is packed within a strong outer packaging. Solid materials must be contained within a primary receptacle having a weight capacity of 1 pound or less; the primary receptacle(s) must be surrounded with cushioning material and packed within a strong outer packaging. Each mailpiece may not exceed a total weight of 25 pounds. The address side of each mailpiece must be plainly and durably marked with "ORM-D AIR" or "ORM-D," as applicable, immediately following or below the proper shipping name. A mailable class 5 material sent via surface transportation must be marked "Surface Mail Only" on the address side. A mailable material sent via air transportation must bear a shipper's declaration for dangerous goods.

7.0 TOXIC SUBSTANCES (HAZARD CLASS 6, DIVISION 6.1)

Definitions The terms used in the standards for division 6.1 material are:

- 7.1
- a. *Toxic substance* is a poisonous material, other than a gas, that is known to be so toxic to humans as to cause death, injury, or harm to human health if swallowed, inhaled, or contacted by the skin.
 - b. *Oral toxicity* applies to a liquid with a lethal dose (LD₅₀) for acute oral toxicity of not more than 500 mg/kg or a solid with an LD₅₀ for acute oral toxicity of not more than 200 mg/kg that when administered by mouth is likely to cause death within 14 days in half of the test animals.

- c. *Dermal toxicity* applies to a material with an LD₅₀ for acute dermal toxicity of not more than 1,000 mg/kg that when administered by continuous contact with bare skin is likely to cause death within 14 days in half of the test animals.
- d. *Inhalation toxicity* applies to a dust or mist with a lethal concentration (LC₅₀) for acute inhalation toxicity of not more than 10 mg/L; or a saturated vapor concentration in air at 68°F (20°C) of more than one-fifth of the LC₅₀ for acute toxicity on inhalation of vapors and with an LC₅₀ for acute inhalation toxicity of vapors of not more than 5,000 ml/m³; that when administered by continuous inhalation for 1 hour is likely to cause death within 14 days in half of the test animals.
- e. *Irritating material* is any liquid or solid substance (e.g., tear gas) that gives off intense fumes and causes extreme irritation and impairment to a person's ability to function.

Mailability

7.2

Toxic substances or poisons are prohibited in international mail. For domestic mail, a division 6.1 toxic substance or poison that can qualify as an ORM-D material is permitted when packaged under the applicable requirements in 7.4. Certain other poisonous materials are permitted to be mailed only between the authorized parties and under the conditions in 7.3.

Authorized Parties

7.3

A division 6.1 toxic substance having an LD₅₀ for oral toxicity of greater than 5mg/kg but less than or equal to 50 mg/kg is mailable only if packaged under the applicable requirements in 7.4 and when sent between authorized parties and under specified conditions, as follows:

- a. Toxic substances for scientific use (not outwardly or of their own force dangerous or injurious to life, health, or property) may be sent only between manufacturers, dealers, bona fide research or experimental scientific laboratories, and employees of federal, state, or local governments who have official use for such poisons and are designated by the agency head to receive or send such poisons. For air transportation, a shipper's declaration for dangerous good is required.
- b. Poisonous drugs and medicines may be sent only from the manufacturer or dealer of the drugs and medicines to licensed physicians, surgeons, dentists, pharmacists, druggists, cosmetologists, barbers, and veterinarians (18 USC 1716).

Packaging and Marking

7.4

The following requirements must be met, as applicable:

- a. A toxic substance that can qualify as an ORM-D material and does not exceed a total capacity of 8 ounces per mailpiece is permitted if: the material is held in an inner receptacle(s); enough cushioning material surrounds the primary receptacle to absorb all potential leakage; the cushioning and primary receptacle(s) are packed in another securely sealed secondary packaging that is placed within a strong outer packaging. Each mailpiece must be plainly and durably marked on the address side with "ORM-D" or "ORM-D AIR," as applicable, immediately following or below the proper shipping name. Mailable material sent via surface transportation must be marked on the address side as "Surface Mail Only."

- b. Other toxic substances and poisons are permitted to be sent between the authorized parties and under the conditions in 7.3 when they do not exceed 8 ounces per mailpiece and if: the material is held in a leak-resistant primary receptacle(s); sufficient absorbent and cushioning material completely surround each primary receptacle; the primary receptacle(s) and the absorbent and cushioning materials are firmly held within a secondary leakproof (for liquids) or siftproof (for solids) packaging; the secondary packaging is firmly and securely held within a strong outer packaging of 200-pound grade corrugated fiberboard or equivalent strength. The address side of each mailpiece must be marked with the proper shipping name and UN (or NA) identification number of the material (unless exempted by C024.11.2). Mailable materials sent via surface transportation must be marked on the address side as "Surface Mail Only." Each mailpiece must bear a shipping paper.

Irritating Material
7.5

Irritants are prohibited in international mail and domestic mail.

8.0 INFECTIOUS SUBSTANCES (HAZARD CLASS 6, DIVISION 6.2)

General
8.1

Infectious substances (i.e., etiologic agents), clinical specimens, and biological products are not permitted in international mail or domestic mail, except when they are intended for medical or veterinary use, research, or laboratory certification related to public health; and when it is determined that such items are properly prepared for mailing to withstand shocks, pressure changes, and other conditions incident to ordinary handling in transit. Mailable infectious substances sent as international mail must meet the standards in *International Mail Manual* 135. For domestic mail, mailable infectious substances must meet the applicable standards in 8.0.

Definitions
8.2

The terms used in the standards for division 6.2 material are:

- a. *Infectious substance* (etiologic agent) means a viable microorganism, or its toxin, that causes or may cause disease in human beings or animals, and includes those agents listed in 42 CFR 72.3 and any other agent that causes or may cause severe, disabling, or fatal disease. The terms infectious substance and etiologic agent are synonymous.
- b. *Clinical (diagnostic) specimen* means any human or animal material including, but not limited to, excreta, secretions, blood, blood components, tissue, and tissue fluids, collected and being shipped for purposes of diagnosis.
- c. *Biological product* means a material derived from a living organism that is prepared and manufactured in accordance with 9 CFR 102-104 (licenses for biological products; experimental products, distribution, and evaluation prior to licensing; and permits for biological products), 21 CFR 312 (investigational new drug application), or 21 CFR 600-680 (biologics) and that, under such provisions, may be shipped in interstate commerce. Biological products include, but are not limited to, products such as vaccines.

- d. *Sharps* means any item of medical waste having a projecting cutting edge or fine point that was used in animal or human patient care or treatment or in medical research or industrial laboratories. The term includes, but is not limited to, hypodermic needles, syringes (with or without the attached needles), pasteur pipettes, scalpel blades, blood vials, needles with attached tubing, and culture dishes (regardless of the presence of infectious agents). Also included are other types of broken or unbroken glassware that were in contact with infectious agents, such as used slides or cover slips. The term does not include new unused medical devices such as hypodermic needles, syringes, and scalpel blades.
- e. *Other medical devices* means all materials or devices used in animal or human patient care or treatment or in medical research that are not, or do not contain, a projecting sharp and are not known or not reasonably believed to contain an infectious substance (etiologic agent).

**Packaging Infectious
Substances
(Etiologic Agents)**
8.3

Packaging for all infectious substances (etiologic agents) is subject to these standards:

- a. All infectious substances, clinical specimens, and biological products known or reasonably believed to contain an etiologic agent must meet the packaging requirements of 42 CFR 72.3 and must not exceed 50 ml per mailpiece. The primary receptacle or the secondary packaging must be capable of withstanding, without leakage, an internal pressure that produces a pressure differential of not less than 14 psi (95 kPa) and temperature in the range of -40°F to 131°F (-40°C to 55°C) as required by 49 CFR 173.196.
- b. The material must be packaged in a securely sealed and watertight primary receptacle (test tube, vial, etc.) that is enclosed in another securely sealed, watertight, and durable secondary packaging. Several primary receptacles may be enclosed in a single secondary packaging if there is adequate shock-absorbent material between them to prevent breakage during ordinary handling and if the total liquid volume of all enclosed primary receptacles does not exceed 50 ml.
- c. The space between the primary receptacle(s) and the secondary packaging at the top, bottom, and sides must contain enough material to absorb the entire content of the primary receptacle(s) in case of breakage or leakage.
- d. The primary receptacle(s) and the secondary packaging must be enclosed in an outer packaging constructed of fiberboard or other equivalent material. No external surface of the outer packaging may be less than 3.9 inches (100 mm) as required by 49 CFR 173.196.
- e. Each mailpiece must be designed and constructed so that, if it were subject to the environmental and test conditions in 49 CFR 178.609, there would be no release of the content to the environment and no significant reduction in the effectiveness of the packaging.
- f. The address side of the mailpiece must bear the "Etiologic Agents/Biohazard Material" label required by 42 CFR 72.3(d) and must be sent by Express Mail, Priority Mail, or First-Class Mail. Those specific etiologic agents listed in 42 CFR 72.3(f) must be sent registered mail. Each mailpiece must be marked on the address side with the proper shipping name and UN number of the material (e.g., "Infectious Substances Affecting Humans, UN2814," or "Infectious Substances Affecting Animals, UN2900"). Each mailpiece must bear a DOT Class 6 label for infectious substances (etiologic agents), proper UN package specification markings, and orientation markings.

- g. Articles that include dry ice as a refrigerant for the infectious substance must meet the requirements of 42 CFR 72.3(c) and 49 CFR 173.196(e)(2)(ii).

**Packaging Clinical
Specimens and
Biological Products**

8.4

A clinical specimen or biological product known or reasonably believed to contain an infectious substance (etiologic agent) must be packaged under [8.3](#). The packaging of a clinical specimen (e.g., a urine or blood specimen used in drug-testing programs or for insurance purposes) or a biological product (e.g., polio vaccine) that is not known or not reasonably believed to contain an infectious substance (etiologic agent) is subject to these packaging standards:

- a. Not Exceeding 50 ml. A clinical specimen or biological product consisting of 50 ml or less per mailpiece must be packaged in a securely sealed primary receptacle. Sufficient shock-resistant material to withstand shock and pressure changes and absorbent material must surround the primary receptacle, or be otherwise configured to take up the content in case of leakage. The primary receptacle and the absorbent cushioning must be enclosed in a secondary packaging having a leakproof barrier that can prevent failure of the secondary packaging should there be leakage of the primary receptacle during shipment. The secondary packaging may serve as the outer packaging.
- b. Exceeding 50 ml. In addition to meeting the requirements in [8.4a](#), a clinical specimen or biological product that exceeds 50 ml per mailpiece also is subject to these requirements:
 - (1) A single primary receptacle must not contain more than 1,000 ml of specimen; two or more primary receptacles whose combined volume does not exceed 1,000 ml may be enclosed in a single secondary packaging.
 - (2) The secondary packaging cannot serve as the outer packaging; the secondary packaging must be enclosed in a fiberboard box or container of equivalent strength; the maximum amount of a specimen that may be enclosed in a single outer packaging must not exceed 4,000 ml.
- c. Markings. Mailable material must be marked as specified in [8.7](#).

Sharps

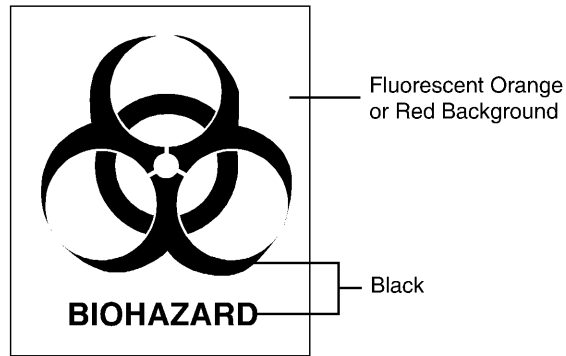
8.5

The types of used sharps waste defined in [8.2d](#) are permitted for mailing only using merchandise return service (see [S923](#)) in conjunction with First-Class Mail or Priority Mail, subject to these standards:

- a. Authorization. Each distributor or manufacturer of a complete sharps mailing kit or packaging assembly, including containers, cartons, and any other related material to be used to mail sharps to a storage or disposal facility, must obtain authorization from the USPS. Before applying for authorization, each type of mailing kit must be tested and certified against the standards in [8.5d](#) by an independent party. A written request for authorization is sent to the Mail Preparation and Standards manager, USPS Headquarters (see [G043](#) for address). The request must contain the following:
 - (1) A \$50,000 surety bond or letter of credit as proof of sufficient financial responsibility to cover disposal costs if the manufacturer (or distributor) ceases doing business before all its shipping containers are disposed of, or to cover cleanup costs if spills occur while the containers are in USPS possession.
 - (2) Address of the headquarters or general business office of the distributor or manufacturer.
 - (3) Address of each disposal and storage site.

- (4) List of all types of mailing kits to be covered by the request, a complete sample of each mailing kit, and proof of package testing certifications performed by the independent testing facility that subjected the packaging materials to the testing requirements in [8.5d](#).
 - (5) Copy of the proposed manifest to be used with all mailings.
 - (6) 24-hour telephone number for emergencies.
 - (7) List of the types of sharps waste to be mailed for disposal.
- b. Packaging. The packaging for used sharps waste and unsterilized containers is subject to these standards:
- (1) Used sharps waste must be packaged in a securely sealed, leak-resistant, and puncture-resistant primary receptacle that may not contain more than 50 ml of residual waste liquid. The primary receptacle must maintain its integrity when exposed to temperatures between 0° and 120°F.
 - (2) The primary receptacle must be packaged within a watertight secondary packaging or containment system. The secondary packaging may consist of more than one component. If one of the components is a plastic bag, it must be at least 3.0 mils thick and reinforced with a fiberboard sleeve having a minimum thickness of 40-point. A plastic bag by itself does not meet the requirement for a secondary packaging. Several primary receptacles may be enclosed in a secondary packaging.
 - (3) The secondary packaging must be enclosed in an outer packaging or shipping container constructed of 200-pound grade corrugated fiberboard or similar material of equivalent strength. The secondary packaging must fit securely within the outer packaging to prevent breakage during ordinary processing.
 - (4) There must be enough material within a watertight barrier to absorb and retain three times the total liquid allowed within the primary receptacle (150 ml per primary receptacle) in case of leakage.
 - (5) Each mailpiece must not weigh more than 35 pounds.
 - (6) In each sharps mailing kit, the manufacturer or distributor must include a step-by-step instruction sheet that clearly details the proper sequence and methods of kit assembly prior to mailing to prevent package failure during transport due to improper assembly.
- c. Package documentation, marking, and labeling.
- (1) Each primary receptacle and outer packaging must bear a label, which cannot be detached intact, showing: (a) company name of the manufacturer or the distributor; (b) U.S. Postal Service Authorization Number; and (c) container ID number (or unique model number) signifying that the packaging material is certified and the manufacturer or distributor obtained an authorization required by [8.5a](#).
 - (2) The outer packaging must bear the international biohazard symbol in black with either a fluorescent orange or fluorescent red background as shown in [Exhibit 8.5c\(2\)](#).

**International
Biohazard Symbol**
Exhibit 8.5c(2)



- (3) All mailpieces containing used sharps must be accompanied by a four-part manifest or mail disposal service shipping record. The manifest must be placed in an envelope affixed to the outside of the mailpiece. The manifest must comply with all applicable requirements imposed by the laws of the state from which the package is mailed. At a minimum, the information shown in [Exhibit 8.5c\(3\)](#) must be on the manifest.
 - (4) The outer packaging must bear a properly prepared merchandise return service label (see [S923](#)).
 - (5) Mailable material must be marked as specified in [8.7](#).
- d. Package testing. Testing must be performed on one sample of each type of kit to prove compliance with [8.5a](#). The sample packaging kit must withstand the tests in 49 CFR 178.604 (leakproof test), 178.606 (stacking test), 178.608 (vibration standard), and 178.609 (test requirements for packaging for infectious substances/etiologic agents). In addition, the outer packaging must be subjected to the bursting test in 49 CFR 178.609(h)(2) and an absorbency test for the absorbent material commensurate with the requirements in [8.5b\(4\)](#) must be performed. The test results must show that if every packaging kit prepared for mailing were to be subject to the environmental and test conditions in 49 CFR, there would be no release of the contents to the environment and no significant reduction in the effectiveness of the packaging. Periodic retesting must be performed whenever a change is made to the packaging design or every 24 months, whichever occurs first.

**Other Used Medical
Devices**
8.6

USPS authorization is not required to mail other used medical devices and waste as defined in [8.2e](#). Packaging for other used medical devices is subject to these standards:

- a. Other used medical devices must be mailed as First-Class Mail, Priority Mail, or Express Mail.
- b. Other used medical devices must be packaged in a securely sealed, leak-resistant primary receptacle, the total liquid volume of which must not exceed 50 ml unless the devices are shipped in formalin or its equivalent. The primary receptacle must maintain its integrity when exposed to temperatures between 0° and 120°F.
- c. The primary receptacle must be enclosed in an outer packaging constructed of 200-pound grade corrugated fiberboard or similar material of equivalent strength. The primary receptacle must fit securely within the outer packaging to prevent breakage during ordinary processing.

Exhibit 8.5c(3) Manifest for Sharps Containers

023

1. Generator (Mailer)

- a. Name.
- b. Complete address (not a post office box).
- c. Telephone number.
- d. Description of contents of shipping container. "Used Medical Sharps" is required.
- e. Date shipping container was mailed.
- f. State permit number of approved facility in which contents are to be disposed.

2. Destination Facility (Disposal Site)

Complete address (not a post office box).

3. Generator's (Mailer's) Certification

"I certify that this carton has been approved for the mailing of used medical sharps, has been prepared for mailing in accordance with the directions for that purpose, and does not contain excess liquid or nonmailable material in violation of the applicable postal regulations. I AM AWARE THAT FULL RESPONSIBILITY RESTS WITH THE GENERATOR (MAILER) FOR ANY VIOLATION OF 18 USC 1716 WHICH MAY RESULT FROM PLACING IMPROPERLY PACKAGED ITEMS IN THE MAIL. I also certify that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and in proper condition for carriage by air according to the applicable national governmental regulations."

This printed statement is to be followed by printed name of generator (mailer), signature of generator, and date when manifest was signed.

4. Destination Facility (Storage or Disposal Site)

- a. Printed certification of receipt, treatment, and disposal stating: "I certify that the contents of this package have been received, treated, and disposed of in accordance with all local, state, and federal regulations."
- b. Printed or typewritten name of an authorized recipient at destination facility.
- c. Signature of authorized recipient at destination facility.
- d. Date representative of destination facility signed manifest.

5. Transporter or Intermediate Handler Other Than U.S. Postal Service (If Different From Destination Facility)

- a. Name.
- b. Complete street address (not a post office box).
- c. Printed name of transporter or intermediate handler.
- d. Signature of transporter or intermediate handler.

6. Serialized Manifests

Manifest or mail disposal service shipping forms must be serialized.

7. Area Reserved for Comments

Manifest must contain an area designated for entering discrepancies and comments, especially if an alternative destination facility is used.

8. Completion and Distribution of Manifest

Manifest must contain instructions for properly completing manifest and distributing copies.

- a. One copy must be kept by generator (mailer).
- b. One copy must be kept by transporter or intermediate handler for 90 days.
- c. One copy must be kept by destination facility for 90 days.
- d. One copy must be mailed to generator by destination facility.

9. Emergency Telephone Number

Manifest must bear following statement with appropriate information:

"IN CASE OF EMERGENCY, OR THE DISCOVERY OF DAMAGE OR LEAKAGE, CALL 1-800-XXX-XXXX."

- d. There must be enough absorbent material and secondary leakproof material between the primary receptacle and the outer packaging to absorb three times the total liquid allowed. If the device is mailed in a formalin solution or its equivalent, there must be enough absorbent material and secondary leakproof material to absorb the entire liquid contents in case of leakage.
- e. Each parcel containing other used medical devices must bear a complete street return address (not a post office box) and cannot exceed 35 pounds.
- f. Mailable material must be marked as specified in 8.7.

**Marking and Labeling
of Division 6.2
Material**

8.7

All mailable division 6.2 materials, except those prepared under 8.4, must be sent via air transportation. The following markings and labels are required, as applicable:

- a. Infectious Substances (Etiologic Agents). Materials mailable under 8.3 must be marked and labeled as specified in 8.3f. A shipper's declaration for dangerous goods is required.
- b. Clinical Specimens and Biological Products. Materials mailable under 8.4 must be marked on the address side with "Clinical Specimen—Blood Sample," "Clinical Specimen—Urine Sample," "Clinical Specimen—Saliva Sample," "Biological Product," etc., as appropriate. The universal biohazard symbol shown in Exhibit 8.5c(2) may appear on the address side. A shipping paper is not required for material sent under 8.4.
- c. Sharps Wastes. Parcels containing sharps waste mailable under 8.5 must be marked on the address side with the proper shipping name and correct UN number (e.g., "Regulated Medical Waste—Sharps, UN 3291"). The universal biohazard symbol shown in Exhibit 8.5c(2) must appear on the outside of the mailpiece. The manifest required in 8.5c serves as the shipping paper.
- d. Other Used Medical Devices. Parcels containing other used medical devices mailable under 8.6 must be marked on the address side with the proper shipping name and correct UN number (e.g., "Regulated Medical Waste, UN 3291"). The universal biohazard symbol shown in Exhibit 8.5c(2) must appear on the outside of the mailpiece. A shipping paper is required.

9.0 RADIOACTIVE MATERIALS (HAZARD CLASS 7)

Radioactive materials are prohibited in international mail and domestic mail if required to bear the DOT Radioactive White-I, Radioactive Yellow-II, or Radioactive Yellow-III label (49 CFR 172.436, 172.438, or 172.440, respectively) or if it contains quantities of radioactive material in excess of those authorized in Publication 52, *Acceptance of Hazardous, Restricted, or Perishable Matter*. Radioactive materials are prohibited in domestic mail via air transportation. For international mail, the standards in IMM 135 apply.

10.0 CORROSIVES (HAZARD CLASS 8)

Definition

10.1

A *corrosive* is any liquid or solid that causes visible destruction or irreversible alteration in human skin tissue at the site of contact or a liquid that has a severe corrosion rate on steel.

Mailability

10.2

Corrosives are prohibited in international mail. A corrosive that can qualify as an ORM-D material is permitted in domestic mail via air or surface transportation subject to these limitations:

- a. Liquid Corrosive. A liquid mixture must be 1 pint or less and must contain 15% or less corrosive material with the remainder of the mixture not being a hazardous material, unless otherwise specified for a specific corrosive material. Primary receptacles must be securely sealed compatible glass bottles that are enclosed within securely sealed metal or plastic secondary packagings. The secondary packaging must be packed within a strong outer packaging that does not exceed 25 pounds per mailpiece.
- b. Solid Corrosive. A solid mixture must be 10 pounds or less per primary receptacle and must contain 10% or less corrosive material with the remainder of the mixture not being a hazardous material, unless otherwise specified for a specific corrosive solid. The primary receptacle(s) and secondary packaging must be securely sealed compatible siftproof containers packed in strong outer packaging. The total weight of a mailable solid corrosive cannot exceed 25 pounds per mailpiece.

Marking
10.3 For surface transportation, the mailpiece must be plainly and durably marked on the address side with "Surface Mail Only" and "ORM-D" immediately following or below the proper shipping name. For air transportation, the mailpiece must be plainly and durably marked on the address side with "ORM-D AIR" immediately following or below the proper shipping name and must bear a shipper's declaration for dangerous goods.

**Nonspillable Wet
Electric Storage
Batteries**
10.4 A battery containing liquid electrolyte is prohibited from mailing unless the battery casing is completely sealed to prevent the liquid corrosive from spilling during handling. Nonspillable batteries with UN2800 are prohibited in international mail, but may be sent as domestic mail via air or surface transportation under the following conditions:

- a. The nonspillable battery must be protected from short circuits and securely packaged in a strong fiberboard box.
- b. The outer packaging must be marked "NONSPILLABLE BATTERY, UN2800" on the address side.
- c. The nonspillable battery must be capable of withstanding the vibration and pressure differential tests cited in 49 CFR 173.159(d)(i) and (ii).
- d. Only one nonspillable battery is allowed per mailpiece and the weight of the mailpiece cannot exceed 50 pounds.

11.0 MISCELLANEOUS HAZARDOUS MATERIALS (HAZARD CLASS 9)

Definition
11.1 A *miscellaneous hazardous material* is a substance or article that presents a hazard during transportation but does not meet the definition of any other hazard class. Examples of miscellaneous hazardous materials (not all of which are mailable) include solid dry ice, magnetized materials, elevated temperature substances, environmentally hazardous substances, life-saving appliances, and asbestos.

Mailability
11.2 A miscellaneous hazardous material is prohibited in international mail. A miscellaneous hazardous material that can qualify as an ORM-D material is permitted for domestic mail via air or surface transportation, subject to the applicable 49 CFR requirements.

Marking
11.3 For surface transportation, the mailpiece must be plainly and durably marked on the address side with "Surface Mail Only" and "ORM-D" immediately following or below the proper shipping name. For air transportation, a mailable material must

be plainly and durably marked on the address side with "ORM-D AIR" immediately following or below the proper shipping name and bear a shipper's declaration for dangerous goods.

Dry Ice
11.4

Dry ice (carbon dioxide solid) is prohibited in international mail. Dry ice is permitted in the domestic mail via air or surface transportation when used as a refrigerant to cool the contents of a mailpiece. A mailpiece containing dry ice must be packed in a container that is designed to permit the release of carbon dioxide gas and prevent a build-up of pressure that could rupture the parcel. Containers must conform to 49 CFR 173.217 and 175.10(a)(13). Additionally, the following applies:

- a. Air Transportation. Each mailpiece may not contain more than 5 pounds of dry ice. The address side of each mailpiece must be clearly marked "Carbon Dioxide Solid, UN1845" or "Dry Ice, UN1845" along with the net weight of the dry ice and the identity of the contents being cooled. A shipper's declaration prepared in triplicate and a DOT Class 9 warning label for miscellaneous hazardous materials must be affixed to the outside of the mailpiece.
- b. Surface Transportation. The amount of dry ice per mailpiece may exceed 5 pounds. The address side of each mailpiece must be clearly marked "Carbon Dioxide Solid" or "Dry Ice" and "Surface Mail Only" along with the net weight of the dry ice and the identity of the contents being cooled. A shipper's declaration and a DOT Class 9 warning label is not required for the dry ice.

Magnetized Materials
11.5

A magnetized material is a hazard class 9 material subject to these limitations:

- a. Definition. A magnetized material is any article that has a magnetic field strength capable of causing the deviation of aircraft instruments. A magnetized material is regulated as a hazard class 9 material when it is presented for air transportation and has a measurable magnetic field strength greater than 0.00525 gauss at 15 feet. Magnetized materials include magnets and magnetized devices such as magnetrons and light meters of sufficient strength to possibly cause erroneous aircraft compass readings. If the maximum field strength observed at a distance of 7 feet is less than 0.002 gauss or there is no significant compass deflection (less than 0.5 degree), the article is not restricted as a magnetized material.
- b. Mailability. Regulated magnetized material is prohibited in international mail. A material with a measurable magnetic field strength greater than 0.00525 gauss at 15 feet is prohibited from domestic mail via air transportation. Mailable materials must be packaged and marked as specified in Publication 52. Mailable material permitted via air transportation must bear a shipper's declaration for dangerous goods. Magnetized material is not regulated as a hazardous material when transported via surface transportation.